

REMARKS

Claims 1-24 are pending in the application.

Claims 1-24 are rejected.

Claims 16, 18, and 19 are cancelled.

Claims 1, 11, 17 and 21-24 are amended.

No new matter is added.

Claims 1-15, 17, and 20-24 remain in the case.

Claim Rejections - 35 USC § 102

Claims 1-2, 4-5, 9-10, 11-12, 14, 18-19 and 21-24 are rejected under 35 U.S.C. § 102(a) as being anticipated by U.S. Patent No. 6,380,028, Chang, et al. ("Chang").

Applicant respectfully traverses the rejections.

Claim 1 is amended to recite that "forming a control gate layer comprising an in-situ doped amorphous silicon layer on the intergate dielectric layer; thereafter, crystallizing the amorphous silicon layer by annealing the control gate layer." Support for this can be found at page 6, lines 15-26 of the present application.

Contrastingly, Chang discloses that a polycrystalline layer 48 is already formed even before the annealing process is performed (see column 7, lines 50 and 67). For this reason, there is no need to crystallize the amorphous silicon layer as in the claimed invention recited in claim 1.

Thus, Chang does not teach or disclose all of the limitations of claim 1 and, therefore, claim 1 is believed to be allowable and the applicant respectfully requests allowance.

Claims 2, 4, 5, 9, and 10 all depend from independent claim 1, and for at least the same reasons these claims are believed to be allowable and application respectfully requests allowance of these claims.

With respect to amended independent claim 11, the claim is amended to recite that the resultant structure is furnace annealed. Chang only discloses rapid thermal annealing and not furnace annealing. Consequently, Chang does not disclose each and every element of amended independent claim 11.

Thus amended independent claim 11 is believed to be allowable and the applicant respectfully requests allowance.

Claims 12 and 14 depend from independent claim 11, and for at least the same reasons these claims are believed to be allowable and the applicant respectfully requests allowance of these claims.

With respect to amended independent claim 21, the amended claim recites reducing a thickness variation of the ONO layer and a bird's beak phenomenon at the interface between the ONO layer and the second silicon layer by annealing the resultant structure.

Chang only discloses reducing or eliminating microcracking in the tungsten silicide layer as a result of annealing, and does not disclose reducing thickness variations in the ONO layer or reducing a bird's beak phenomenon. Thus Chang does not anticipate amended independent claim 21 because Chang fails to disclose each and every element of the claim.

Thus amended independent claim 21 is believed to be allowable and the applicant respectfully requests its allowance.

Claims 22-24 depend from independent claim 21, and for at least the same reasons these claims are believed to be allowable and the applicant respectfully requests their allowance.

Claim Rejections – 35 USC § 103

Claims 3, 6-8 and 15-17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,380,029, Chang, et al. ("Chang, et al.").

With respect to claims 3, 6-8 and 15-17, these claims depend from independent claims 1 and 11. As such, they include all of the limitations of the corresponding independent claim. Because no further art has been cited that can cure the above-described deficiencies of Chang with respect to the independent claims, these claims are believed to be allowable for at least the same reasons and the applicant respectfully requests their allowance.

Further with respect to claims 7-8 and 16-17, the claims recite using furnace annealing to anneal the resultant structures. As described in the present application, furnace annealing results in a structure that reduces the variation in thickness of the ONO layer and reduces the bird's beak phenomenon.

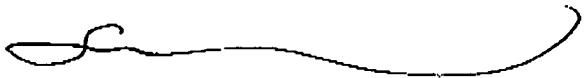
Chang only discloses using RTA to reduce microcracking in the metal silicide layer. Chang does not disclose how furnace annealing would affect the resulting structure. Respectfully, the Examiner has engaged in improper hindsight to determine that it would have been obvious that furnace annealing in combination with Chang would result in the improved structure described in the present application.

For the foregoing reasons, reconsideration and allowance of claims 1-15, 17 and 20-24 of the application as amended is solicited. The Examiner is encouraged to telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

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Respectfully submitted,

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Limited Recognition Under 37 CFR § 10.9(b)

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